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FOREIGN ANIMAL DISEASES REPORT
OCTOBER 1972

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EXOTIC NEWCASTLE DISEASE IN LARGE
POULTRY OPERATION

JUL 28 '75 Exotic Newcastle disease (ND) of poultry and other birds has been diagnosed in Egg City, a 2.8 million-bird-egg-laying operation near Moorpark in Ventura County, California.

DOCUMENT SECTION
CURRENT SERIAL RECORDS

The flock will be destroyed and the owner paid Federal indemnities for their fair market value.

There are about 34.6 million laying hens in southern California. Nationwide, there are an estimated 303.7 million layers.

Officials of USDA's Animal and Plant Health Inspection Service (APHIS) explained that if the disease became established in this country, broilers and replacement pullets for laying flocks would be particularly vulnerable. Turkey production for the coming holiday seasons would also be severely threatened. (Cont'd page 2)

VEE-MEXICO

During 1972, VEE moved from the central portion of Mexico northward to Durango and along the western coast of Mexico to the southern part of Sonora. The epidemic in the southern part of Sonora occurred following heavy rains and flooding of large areas during the month of August. A surveillance team of USDA veterinarians and entomologists visited the State of Sonora for 2 weeks in September and found that the epidemic had been brought under control. Very few suspected encephalitis cases were being reported and the vector population from Hermosillo north was very low. It would seem that if the disease is to enter the United States by natural means this year that it would enter down the river valley into Douglas, Arizona. With cool nights and low vector population, it is probable that VEE will not occur in the United States this year.



"Has your horse been vaccinated for VEE?"

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EMERGENCY PROGRAMS
VETERINARY SERVICES
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

EXOTIC NEWCASTLE DISEASE IN LARGE POULTRY OPERATION (Cont'd from Page 1)

Early diagnosis of the disease at Egg City was made possible through the placement of "sentinel birds." The State-Federal Task Force fighting the disease in southern California has been using these highly susceptible chickens--which have been raised free of specific diseases--as a means of detecting inapparent infections. The sentinel birds, strategically positioned among the Egg City flock, became sick and laboratory tests confirmed exotic ND infection.

Destruction of infected and exposed flocks is the only sure way of eradicating the disease. Proper vaccination of unexposed flocks can provide some protection against infection with exotic ND, but once the virus gains a foothold, there is no other effective way of eliminating it.

Since the declaration of the southern California emergency in March, some 4.2 million birds have been destroyed at a cost of about \$7.6 million in Federal indemnities, according to APHIS officials.

EXOTIC NEWCASTLE DISEASE ACTIVITIES

California ... On September 7, exotic ND was diagnosed in the largest egg-producing ranch in the United States. This ranch consists of one location in San Luis Obispo County and two locations in Ventura County, California. There were approximately 3,400,000 birds on the three premises. Newcastle Disease was found through the use of 1,500 sentinel birds placed strategically throughout the laying flock of approximately 2,800,000 hens. The birds have been appraised and depopulation of the entire population on all three premises is well underway.

A quarantine was placed on the premises in San Luis Obispo County which was outside the quarantined area.

Epidemiological tracing of movement of people and birds from the infected flocks in the Ventura County area has resulted in a large number of flocks, mostly small backyard operations, being destroyed as exposed flocks.

During September, 13 flocks containing approximately 3,801,805 birds were found infected with ND, and an additional 127 flocks with 3,501 birds were considered exposed and subsequently destroyed.

During the month, 4,382,000 birds in commercial flocks were vaccinated under supervision. Total number of birds vaccinated through September numbered more than 96 million.

All newly infected flocks have been found within the quarantined area during the month. The remaining centers of virus concentration seem to be in southern Ventura County in the western part of the quarantined area and in the eastern part of the quarantined area that consist of parts of San Bernardino and Riverside Counties.

The use of sentinel birds as a tool for locating infection has proven very valuable. These birds are also being used to evaluate areas currently under quarantine to determine where no infection exists so that areas may be safely released from quarantine. Sentinel birds are placed in all commercial and a certain percentage of backyard flocks in the area being evaluated. It is planned that sentinel birds will eventually be placed in all commercial flocks in the quarantined area beginning on the outer edge and working toward the areas where exotic ND is still known to exist.

The birds used as sentinels are specific pathogen-free chickens that have not received any vaccinations and are highly susceptible to the ND virus. They are handled in a manner to assure that there is no contact with the disease before being placed in the flock.

The scientific advisory group met in Riverside, California, September 19, to evaluate the eradication program and has recommended that a fourth round of vaccination be supervised in commercial flocks and that sentinel birds be used to evaluate areas for possible quarantine release. The group also made recommendations for research needs on ND.

Arizona ... Surveillance of the areas formerly under quarantine continue with no evidence of disease.

Florida ... On September 1, 1972, the quarantine was lifted from about 100 square miles of southern Broward and northern Dade Counties, leaving about 250 square miles in those counties still under quarantine. The exotic Newcastle disease has never been diagnosed in the area from which the quarantine was released.

No infection has been found in Florida since July 11, 1972. Inspection continues in the reduced quarantined area and surveillance in the areas formerly under quarantine. If no disease is found, the quarantine in Florida could be released in October and the area would then become a surveillance area.

SECRETARY BUTZ ANNOUNCES CHANGE IN NEWCASTLE INDEMNITY PROCEDURES

The Secretary of Agriculture, Earl L. Butz, on October 5, 1972, announced that a change is being made in the indemnity schedule paid poultrymen whose egg laying flocks are being destroyed because of exotic Newcastle disease in southern California.

The change will reflect evaluation of actual egg market conditions for six months following original pre-destruction appraisal.

The new indemnity schedule will be computed in two phases:

(1) Poultry scheduled for destruction because of infection or exposure are appraised before destruction based on market value of the birds at that time. This has been done throughout the program.

(2) Six months after destruction, individual flock appraisals will be reevaluated to reflect the market value of the birds as egg-laying "machines." The reevaluation is retroactive to March 14 when Secretary Butz declared a national emergency because of the exotic Newcastle disease.

"This change in the indemnity schedule is being made to properly reflect the actual value of laying flock operations," Secretary Butz said.

A State-Federal quarantine was imposed on eight southern California counties last March to contain an outbreak of exotic Newcastle disease, traced to imported pet birds. Quarantines have been lifted from all but parts of three counties--Ventura, San Bernardino and Riverside--as progress has been made in the eradication program against the disease.

VEE ACTIVITIES

Venezuelan Equine Encephalitis (VEE) Investigations During September 1972 ...
During the month of September, investigations were conducted in 241 horse herds. This brings the total number of investigations in calendar year 1972 to 863. All of these cases have been diagnosed as negative for VEE except 20 cases for which laboratory results are not yet available. Cumulative totals of positive cases of western and eastern encephalitides in the United States for calendar year 1972 are described below.

Calendar Year 1972

Cumulative Total of Cases of Western Equine Encephalitis (WEE) in the U.S.

Colorado	74	New Mexico	3
Idaho	15	North Carolina	1
Illinois	4	North Dakota	20
Iowa	14	Ohio	1
Kansas	60	Oklahoma	6
Michigan	1	Oregon	5
Minnesota	81	South Dakota	38
Missouri	1	Texas	4
Montana	24	Washington	19
Nebraska	18	Wyoming	19

Total 408

Cumulative Total of Cases of Eastern Equine Encephalitis (EEE) in the U.S.

Florida	3	New Jersey	3
Georgia	1	North Carolina	10
Mississippi	1		

Total 18

Surveillance ... More than 8,610 serum samples to test for VEE antibodies have been collected through September 1972.

The following animal (not previously reported) showed neutralizing antibodies to VEE:

<u>Ident. No.</u>	<u>Species</u>	<u>County, State</u>	<u>Date</u>
73-2663	Coyote	Hidalgo, Texas	8/25/72

California ... No human cases of arbovirus encephalitis acquired in California have been detected as yet this year. However, as reported by Dr. Telford Work, U.C.L.A., one case of Venezuelan equine encephalitis occurred in an entomologist who was working in southern Sinaloa State, Mexico, and who returned to California August 25, the day after onset of symptoms. The diagnosis was confirmed by virus isolation and by specific antibody titer rise. Dr. Work reported isolation of at least 24 strains of St. Louis encephalitis (SLE) virus and eight strains of WEE virus, predominantly from C. tarsalis collected in June and July in the Imperial Valley.

As of September 8, there were 46 clinically suspect cases of encephalitis in equines reported to the State Health Department, but none of these have been laboratory confirmed as due to arboviruses.

Although there is no evidence as yet that VEE virus has become established in California, recent reports of equine and human cases in Sinaloa and southern Sonora States, Mexico, have caused increased concern for Arizona and California in particular.

As of September 8, there have been 2,813 pools of mosquitoes and other Diptera (over 79,736 individual insects) tested by the State Virus Laboratory. There have been 21 isolates of Turlock virus, 28 of SLE virus, 22 of WEE virus, and 7 of unidentified viruses which are none of the commonly expected arboviruses and may be new agents. (California State Department of Public Health, 1972 Arbovirus Encephalitis Surveillance Bulletin - #4, September 8, 1972.)

CDC, Fort Collins, Colorado ... No VEE virus activity has been detected within the areas of Arizona, Colorado, Louisiana, New Mexico, Oklahoma, and Texas that are under surveillance. In the southern area of Arizona surveillance was intensified during the month, because of the VEE equine and human cases that occurred in southern Sonora, Mexico.

To date, 189 arboviral agents have been isolated from 10 mosquito species, and 160 of these were from Culex tarsalis. Seventy-two of these isolates were identified as WEE virus.

No serologic conversion for VEE antibody has been detected from the 167 serum samples obtained in the serial bleedings from the 30 sentinel equines. No VEE virus has been isolated from these animals.

A total of 126,176 mosquitoes (39 species) have been tested from study areas in the six States. It is planned to discontinue the surveillance for VEE virus among mosquitoes in Colorado, Oklahoma, Louisiana, and eastern Texas during October. The surveillance will be continued in southern Arizona, southern New Mexico, and western Texas. (Reported by Dr. R. O. Hayes, September 29, 1972)

WORLD DISEASE REPORTS*

<u>Country</u>	<u>Date 1972</u>	<u>New Outbreaks</u>	<u>Country</u>	<u>Date 1972</u>	<u>New Outbreaks</u>
<u>Foot-and-Mouth Disease</u>					
Argentina	April-May	36	Paraguay	Jan.-March	16
Burundi	March-April	1	Spain	Feb.-March	64
Dahomey	February	1	Tchad	Feb.-March	3
Ghana	Feb.-March	2	Thailand	Dec. 1971	2
Greece	Feb.-March	2	Tunisia	March-April	16
Hong Kong	March-April	18	Turkey	March-May	62
India	Oct.-Dec. 1971	542	UAR(Egypt)	May 16-31	1
Iran	March-April	59	USSR	March	51
Iraq	April-May	136	Venezuela	Feb.-April	18
Kenya	March	10	Viet Nam	March-April	3
Lebanon	April-May	8	Western Germany	March-April	3
<u>Rinderpest</u>					
Dahomey	February	41	Mali	December	1
India	Oct.-Dec. 1971	48	Mauritania	December 1971	1
Kenya	March	2	Tchad	February	2
<u>Contagious Bovine Pleuropneumonia</u>					
Angola	February 1972	1	Mauritania	December 1971	
Ghana	Feb.-March 1972	4		February 1972	17
Ivory Coast	Oct.-Dec. 1971	4	Niger	June 1971	4
	Jan.-Feb. 1972	8	Somalia	Jan.-March 1972	2
Mali	December 1971	11	Tchad	February 1972	1
<u>Lumpy Skin Disease</u>					
Burundi	Mar. Apr. 1972	3	South Africa	February 1972	13
<u>Sheep Pox</u>					
India	Oct.-Dec. 1971	69	Morocco	March 16-	
Iran	April 1972	140		April 15, 1972	30
Iraq	April 1972	570	Tunisia	Mar.-Apr. 1972	7
Kenya	March 1972	1	Turkey	Mar.-Apr. 1972	190
Lebanon	May 1972	1	UAR (Egypt)	May 16-31, 1972	6

WORLD DISEASE REPORTS (Cont'd)*

Country	Date 1972	New Outbreaks	Country	Date 1972	New Outbreaks
<u>African Horsesickness</u>					
Swaziland	April 1972	3			
<u>Dourine</u>					
South Africa	Feb. 1972	2	USSR	March 1972	4
<u>Glanders</u>					
Turkey	Mar.-Apr. 1972	14			
<u>African Swine Fever</u>					
Portugal	Apr.-May 1972	46	Spain	Apr.-May 1972	66
<u>Teschen Disease</u>					
Czechoslovakia	Mar.-Apr. 1972	9			

*Adapted from International Office of Epizootics, Monthly Circulars Nos. 305 and 306, 1972.

PET BIRDS PROHIBITED ENTRY INTO UNITED STATES

Commercial importations of live pet and exotic birds not classified as poultry in Part 92 of the Code of Federal Regulations are now prohibited entry into this country. The new regulations became effective on August 24, 1972. The prohibition does not apply to individuals transporting one or two pet birds, provided the birds are maintained under continuous confinement aboard the carrier.

A commercial shipment of imported exotic birds into southern California is believed to be the source of viscerotropic, velogenic Newcastle disease. The disease has resulted in the death or destruction of approximately 3.9 million poultry and other birds.

The ban on commercial imports of live pet and exotic birds--such as finches, canaries, parakeets, parrots, mynahs, etc.--will remain in effect until it can be determined if adequate procedures can be established and implemented by bird importers and officials of exporting countries which will permit safe importation of these birds without risking reintroduction of exotic Newcastle disease into the United States.

VESICULAR EXANTHEMA - A REVIEW

Definition ... Vesicular exanthema of swine (VES) is an acute, febrile, contagious disease characterized by the formation of vesicles at one or more of the following sites: snout, lips, tongue, mucosae of the oral cavity, the sole, interdigital space, and coronary band of the foot. The size of the virus is between that of foot-and-mouth disease virus and vesicular stomatitis virus. The incubation period is 18 to 72 hours and its course is run in 1 to 2 weeks. Mortality is low and recovery from uncomplicated viral infections is complete.

History ... In 1932 and 1933 outbreaks of a vesicular condition of garbage-fed swine appeared in southern California. This disease was diagnosed as foot-and-mouth disease, even though the inoculation of test animals failed to produce the expected disease response in cattle and guinea pigs. The virus from the first outbreak caused no response while the virus from the second caused mixed responses in horses. The two outbreaks were eliminated by destruction and burial of all infected and exposed animals including cattle and sheep.

In 1934, Dr. Jacob Traum of the University of California, described this new disease and suggested the name of vesicular exanthema of swine.

A third outbreak of VES occurred in June 1934, again in garbage-fed swine. However, this occurred near San Jose--over 500 miles from the first two outbreaks. This time the disease was handled in the same way as vesicular stomatitis by imposing a rigid quarantine on infected premises until all evidence of the disease had disappeared. Strict sanitation measures were also imposed.

Mild outbreaks occurred in 1935 and 1936. In 1939, a serious outbreak started in San Mateo County which involved one-fourth of California's swine in 6 months. The disease was found only in that State each year thereafter until June 1952 when VES was diagnosed in Nebraska. The source of that infection was a swine herd in Wyoming, apparently infected by being fed raw garbage from passenger trains coming from California. In slightly more than one month, 18 States were under Federal quarantine because of movement of swine through the Omaha stockyards.

The Secretary of Agriculture declared a state of emergency on August 1, 1952, providing funds for an eradication program. In another 13 months, VES had involved 42 States and the District of Columbia. The last outbreak, which occurred in New Jersey, ended in November 1956. Three years later, vesicular exanthema was declared by the Secretary of Agriculture to be an exotic disease.

Occurrence ... At the present time VES is not known to exist in any country other than in the laboratory.

Transmission ... Vesicular exanthema spreads principally by three ways: Feeding swine raw garbage containing infected pork scraps; direct contact between infected and non-infected swine; and by mechanical carriers, including people and equipment.

Signs ... Primary lesions from 24-72 hours after infection. This is usually accompanied by a temperature, ranging from 104° to 106° which persists for 24-36 hours. This may be followed 24-72 hours later by a second rise in temperature during the viremic stage preceding the formation of secondary lesions. The secondary lesions are generalized and are usually the first noted by the owner.

The vesicles formed in this disease follow the characteristic course of blanching, blistering, and erosion seen in foot-and-mouth disease and vesicular stomatitis. Primary lesions may spread over the snout and lips. Foot lesions, commonly occurring after generalization, may be severe enough to cause sloughing of the hoof.

Virus ... VES is classed as a Picorna virus and at least 11 antigenically distinct strains of the virus have been identified, although the recovery from infection by one strain has failed to protect an animal from infection by another. VES virus has shown a marked preference for swine while certain antigenic types have caused mild reactions in horses and guinea pigs; hamsters and dogs have been artificially infected in laboratory studies.

Control ... Vaccination was not practical for the eradication of VES because of the multiplicity of strains and severity of the reactions encountered. Each new appearance of the disease resulted in isolation of a new viral strain.

The program for eradication of vesicular exanthema was based on seven major points: quarantine, prompt disposal of infected and exposed swine, cleaning and disinfection, inspection, prohibition of feeding raw garbage, controlling the marketing of garbage-fed swine, and the dissemination of information.

Quarantines were placed on suspect herds until a diagnosis was made and continued on infected herds until destroyed and cleaning and disinfection of the premises was complete. The movement of people and vehicles from those premises were also controlled, with cleaning and disinfection being required. Prompt disposal of infected and exposed swine by slaughter and burial on the premises was the ideal method of eliminating the disease. However, salvage of non-symptomatic swine was allowed. This was accomplished by slaughter and special processing at approved establishments. All such movements were under State-Federal supervision.

Cleaning and disinfection were done under State or Federal supervision. Recommended disinfectants at that time were two percent lye solution or four percent soda ash.

In addition to inspection of swine at stockyards and other concentration points, twice-monthly inspections were made on swine being fed garbage.

Garbage cooking laws were passed by the States. It was considered necessary to heat-treat garbage for 30 minutes at 212° F.

The marketing of all garbage-fed swine was under control and limited to their being sold for slaughter only. Swine fed cooked garbage were inspected before movement. All swine on the premises of origin were inspected for disease before movement was allowed. Swine-fed raw garbage could not be moved, except to slaughter where the pork would be specially heat-treated to destroy the virus.

Information programs were used to give all parts of the livestock industry the facts about the disease and the steps needed to control it.

With the eradication of the 1956 New Jersey outbreaks, vesicular exanthema apparently ceased to exist as a disease of livestock. Several theories have been proposed regarding the origin of this virus.

One of these is that the disease exists or existed undifferentiated in countries where foot-and-mouth disease was prevalent and was introduced into this country in ships' garbage. Others suggest that the virus is a descendant of a strain of foot-and-mouth that affects swine and not cattle or a mutant of foot-and-mouth disease virus. The possibility that the virus has another inapparent host and only manifests itself when swine are accidentally infected has been proposed. The absence of vesicular exanthema for 16 years does not answer the question of its origin nor does this absence dictate that VES will not be seen again.

Diagnosis ... Any suspicious lesions should be reported to your State or Federal regulatory veterinarian, so that a trained vesicular diagnostician can be dispatched. VES, vesicular stomatitis, and foot-and-mouth disease can not be distinguished one from another and as in foot-and-mouth disease, the livestock owner and veterinarian play a vital part in finding the disease quickly should it ever occur in this country.

AFRICAN SWINE FEVER - A SUMMARY OF ENTOMOLOGICAL ASPECTS

Arthropod Transmission ... The role of arthropods as vectors of African swine fever (ASF) virus remains poorly understood. Although primary spread among domestic swine is apparently by contact, three species of arthropods have been incriminated as natural vectors within the endemic areas of the disease. Ticks probably are of importance in transmitting the virus between wild and domestic swine and can serve as reservoirs of the virus. The hog louse may serve as a vector between domestic swine. Therefore, arthropods appear to play some role in maintaining the disease in wild swine, and in serving as a reservoir.

Several scientists have failed in attempts, experimentally, to transmit ASF virus with arthropod vectors. Several species of ticks from wild pigs were injected into susceptibles without transmission (although all ticks were collected from wild pigs whose spleens were also negative for ASF virus); other investigators were unable to transmit ASF virus with the hog louse or fleas.

On the other hand, some scientists have established positive transmission with ticks. Ornithodoros moubata, is capable of transmitting ASF virus but large numbers of ticks are required. This species retains the virus for a relatively short period of time (at least 21 but less than 73 days). Large numbers of ticks were collected from the burrows of warthogs suggesting that the transmission of ASF virus among warthogs could well depend on the large number of O. moubata which infest their burrows. In addition, single O. moubata nymphs, experimentally infected with ASF virus were capable of transmitting the virus for at least 3 months. In 1970, transovarian transmission was obtained from female O. moubata porcinus collected from warthog burrows with filial infection rates as high as 55-81 percent. It was concluded that transovarian infection of the tick is one of the natural maintenance mechanisms for ASF virus. Another investigator showed that Ornithodoros erraticus was capable of transmitting ASF virus between domestic swine for as long as 6 to 12 months.

ASF virus survives, it was demonstrated, in the hog louse (Haematopinus suis) for at least 42 days and possibly during the entire life of the louse, and may be transmitted to other swine. In addition, hog lice collected from a pig which had died from ASF transmitted ASF virus to susceptible pigs.

Potential Arthropod Vectors in North America ... The hog louse, Haematopinus suis, is common and is distributed throughout North America. In the event of an epizootic, it would probably play some role in transmission within an infected herd or between herds in close contact; however, since the individuals are unable to survive for more than three or four days away from their host, lice would not act as reservoirs.

The tick species which have been incriminated as vectors of ASF virus (Ornithodoros moubata porcinus and O. erraticus) are not known to occur in the New World. There are, however, several species of ticks which have been reported from swine in North America. Among these, the hard ticks (Ixodidae) include: Amblyomma americanum, A. cajennese, A. maculatum, Dermacentor variabilis, D. andersoni, and Ixodes scapularis; there are also two species of soft ticks (Argasidae), Otobius megnini and Ornithodoros turicata. Whether any or all of these species are capable of transmitting or acting as reservoirs for ASF virus is not known at this time.

In addition to ticks and lice, there is the possibility of mechanical transmission by biting flies. Although this aspect of ASF virus transmission has apparently not been considered worthy of investigation, experience with hog cholera and other viral diseases of livestock suggests the possibility of at least mechanical transmission by tabanids and other biting flies (such as stable flies, black flies, and buffalo gnats, etc.).

Vector Control During an Epizootic ... Since depopulation of infected and exposed swine herds would probably receive major emphasis in an ASF eradication program, there would be no need to be concerned with hog louse control. Hog lice would not act as reservoirs of ASF virus, and since the lice never voluntarily leave a host except when they crawl directly upon the body of another host, direct contact between infected and susceptible swine would be necessary for transmission.

Unless a swine herd exhibited a noticeable tick infestation, tick control procedures would not necessarily be indicated. If a herd were infested with ticks, however, the premises should be treated with an appropriate pesticide during cleaning and disinfection in order to assure that the ticks do not serve as a reservoir. Nymphs and adults of certain species have been known to live for three or more years without a blood meal and could potentially harbor the virus for this period of time. Several pesticides are available for use during an emergency eradication program and strong consideration should be given to biodegradable organic phosphate pesticides.

Tabanid control is often difficult and short-termed. Since adults are strong fliers, a rapid re-infestation of a treated area from the surrounding vicinity is always a potential problem. Current research suggests that ultra-low volume applications of non-persistent pesticides will be effective for from 4 to 6 days. Although aerial application provides the quickest and easiest method of pesticide dispersal, ground ultra-low volume generators are probably most reliable where uncertain weather conditions exist.

VESICULAR DISEASES IN THE WESTERN HEMISPHERE*

Country	Period 1972	FMD			V.S.	
		0	A	C	N.J.	IND.
Argentina	July 1 - Aug. 15	45	148	17	-	-
Brazil	Jun. 16 - Aug. 16	28	66	76	-	-
Columbia	Jun. 1 - July 31	7	56	-	13	26
Costa Rica	Sept. 1-15	-	-	-	1	-
El Salvador	Aug. 1-15	-	-	-	2	-
Honduras	Sept. 1-15	-	-	-	3	-
Nicaragua	Aug. 1-31	-	-	-	6	-
Peru	July 16 - Aug. 31	1	3	-	-	-
Uruguay	July 15 - Aug. 31	2	6	-	-	-
Venezuela	Aug. 1-31	5	2	-	1	-

* Adapted from Pan-American Foot-and-Mouth Disease Center, Epidemiological Reports, Vol. 4, Nos. 15-17, August 1-15, August 16-31, and September 1-15, 1972.